

Claims

1st

1. Device for heat transfer between a first wall and a second wall respectively in contact with a first thermal mass and a second thermal mass, characterised in that it comprises an insulating unit (12) capable of being interposed between the first wall (14) and the second wall (16) in order to define a closed loop for the circulation of a heat-exchanging fluid (FC), which comprises a first channel (28) extending substantially vertically along the first wall (14) and a second channel (30) extending substantially vertically along the second wall (16), the first channel and the second channel being staggered with respect to one another in the vertical direction in order to define a 'low channel' and a 'high channel', as well as an upper channel (32) connecting the first channel and the second channel and a lower channel (34) connecting the first channel and the second channel, in such a manner that the circulation of the heat-exchanging fluid (FC) is effected naturally in the loop when the low channel is at a higher temperature than the high channel, which permits a heat transfer, and that the circulation of heat-exchanging fluid (FC) is naturally blocked in the loop when the low channel is at a lower temperature than the high channel, which prevents heat transfer by forming a thermal insulator.
2. Device according to claim 1, characterised in that the first channel (28) forms a low channel and the second channel (30) forms a high channel, which makes it possible to effect a heat exchange when the temperature of the first channel is higher than that of the second channel, and to prevent a heat exchange when the temperature of the first channel is lower than that of the second channel.
3. Device according to claim 1, characterised in that the first channel (28) forms a high channel and the second channel (30) forms a low channel, which makes it possible to effect a heat exchange when the temperature of the first channel is lower than that of the second channel and to prevent a heat exchange when the temperature of the first channel is higher than that of the second channel.

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4. Device according to one of claims 1 to 3, characterised in that it comprises selection means (20, 56; 58, 60) for bringing the device into either of two states, comprising a first state in which the first channel (28) forms a low channel and the second channel (30) forms a high channel, and a second state in which the first channel (28) forms a high channel and the second channel (30) forms a low channel.
5. Device according to claim 4, characterised in that it comprises first units (12) configured in the first state and second units (12) configured in the second state, and in that the selection means comprise means (20, 56) to put into operation either the first units or the second units.
6. Device according to claim 4, characterised in that the units (12) are configured in a state in which the selection means comprise changeover means to change the units over into the other of the two states.
7. Device according to claim 6, characterised in that it comprises an element (36) of the shutter type or the like which groups one or more units (12) capable of moving from the first state into the second state, or vice versa, by a changeover.
8. Device according to one of claims 1 to 7, characterised in that it comprises blocking means (54; 20, 56) for blocking voluntarily circulation of the heat-exchanging fluid (FC).
9. Device according to one of claims 1 to 8, characterised in that the first wall (14) is capable of being exposed to solar radiation (S), whereas the second wall (16) backs on to a thermal mass to be heated or cooled.
10. Device according to one of claims 1 to 9, characterised in that the second wall (16) backs on to a wall of a building.

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1. Device according to one of claims 1 to 10, characterised in that the heat-exchanging fluid (FC) is air.
12. Device according to one of claims 1 to 11, characterised in that the unit (12) is formed of an insulating material.
13. Device according to one of claims 1 to 12, characterised in that the insulating material is selected from a polymer, a cellular concrete, or a flexible material such as a fabric.
14. Device according to one of claims 1 to 13, characterised in that the unit comprises an insulating core (20) capable of being placed between the first wall (14) and the second wall (16) in order to help define respectively the first channel (28) and the second channel (30), as well as an upper partition (24) and a lower partition (26) capable of being disposed respectively above and below the core (20) in order to help define respectively the upper channel (32) and the lower channel (34).